AMENDMENTS TO THE CLAIMS

This listing of claim will replace all prior versions and listings of claim in the application.

1.   (Currently amended) A method for use in a system for storing and accessing data, the system including at least one initiator, at least one target comprising a mirrored virtual target or a physical storage device, and at least one switch, the initiator, target and switch communicating using at least one network, the at least one switch including a plurality of ports and respective processing circuitry affiliated with each respective port, the method comprising:

providing a plurality of request paths over the network to the target from the switch, each path passing through at least one port of the switch;

receiving at said at least one port, a plurality of storage input/output requests; and

for each request at each port, dynamically load balancing each request amongst the paths by using said respective processing circuitry affiliated with each respective port to determine the appropriate path.

2. ·   (original) The method of claim 1, wherein dynamically load balancing amongst the paths includes:

determining a respective average response time for each path;

passing a request received by the switch from the initiator to the target along the path with the shortest average response time.

3.   (original) The method of claim 1, wherein the target is a physical storage device.

4.   (original) The method of claim 1, wherein the target is a virtual target.

5.   (original) The method of claim 1, wherein the target is a mirrored target with a plurality of members and wherein load balancing amongst the paths includes:

determining a respective average response time of each member of the mirrored target;

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passing a request received by the switch from the initiator to the target to the member with the shortest average response time.

6. (original) The method of claim 5, wherein the request is a read request.

7. (Cancelled)

8. (Currently amended) A method for use in a storage network including an initiator, a storage device, and a switch, the initiator, storage device and switch communicating via a network the switch including a plurality of ports and affiliated processing circuitry with each respective port, the method comprising:

providing a plurality of storage input/output request paths over the network from the storage device to the switch, each path passing through at least one port of the switch;

receiving a plurality of storage input/output requests at least one port:

determining a respective average response time for each path using said affiliated processing circuitry; and

passing a storage input/output request received by the switch from the initiator to the storage device along the routing path with the shortest average response time using said affiliated processing circuitry.

9. (Currently amended) A method for use in a storage network including an initiator, a mirrored virtual target having a plurality of members, and a switch, the switch including a plurality of ports each with affiliated processing circuitry, the method comprising:

providing a plurality of request paths from the switch to each member of the mirrored virtual target via a network, each path passing through one port of the switch;

receiving a plurality of storage input/output requests at least one port;

determining a respective average response time for each path using said affiliated processing circuitry; and

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passing a storage input/output request received by the switch from the initiator to the member with the shortest average response time using said affiliated processing circuitry.

10.   (original) The method of claim 9, wherein the request is a read request.

11.   (Currently amended) A method for use in a storage network including a switch, a plurality of initiators, and a plurality of targets, the switch, initiators and targets communicating via at least one network, the switch including a plurality of ports, each port having affiliated processing circuitry, wherein some of the targets are mirrored targets with a plurality of members and some of the targets are physical storage devices, the method comprising:

providing a plurality of storage request paths between a switch and a physical storage device from a first initiator;

providing a respective path from a second initiator to each member of a mirrored target via the switch;

determining a respective average response time for each path from the first initiator to the physical storage device and for each path from the second initiator to each member of the mirrored target;

receiving a plurality of storage input/output requests at least one port, at least a first request being from the initiator to the physical storage device and at least a second request from the initiator to the member of the mirrored target;

passing the first request received by the switch from the initiator to the physical storage device along a path to the physical storage device with the shortest average response time using said affiliated processing circuitry; and

passing the second request received by the switch from the initiator to the member of the mirrored target along a path to the member with the shortest average response time using said affiliated processing circuitry.

12.   (original) The method of claim 11, wherein:

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the step of passing a first request is performed by a first linecard in the switch; and

the step of passing a second request is performed by a second linecard in the switch.

13.　(original) The method of claim 11, wherein the step of passing a first request and the step of passing a second request are both performed by the same linecard.

14.　(original) The method of claim 11, wherein the switch includes a plurality of linecards and wherein the step of determining is performed by each linecard.

15.　(Currently amended) A switch for use in a storage network, comprising:

a plurality of ports, at least one port coupled to a network and communicating with an initiator, and at least one port coupled to the network and communicating with at least one target comprising a mirrored virtual target or a physical storage device;

load balancing circuitry associated with each port, said circuitry determining a respective average response time for each of a plurality of storage input/output paths between the switch and the target; and

passing a storage level input/output request received by the switch from the initiator to the target along one of said plurality of paths having a shortest average response time using said circuitry.

16.　(original) The switch of claim 15, wherein:

the load balancing circuitry includes a storage processor and a CPU.

17.　(Currently amended) A switch for use in a storage network, the network including an initiator and a target in communication with the initiator by a plurality of paths between the switch and a target, each path passing through the switch, the switch comprising:

a plurality of ports, at least one of the plurality of paths passing through at least one of the plurality of ports, each port including processing circuitry associated with the port; and

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means for load balancing amongst the paths using said processing circuitry associated with each of said ports, said means including means for receiving a plurality of storage input/output requests at said plurality of ports and passing the storage input/output request received by the switch from the initiator to the target along the path with the shortest average response time.

18.   (original) The switch of claim 17, wherein the means for load balancing includes:

means for maintaining statistics for the response time of each path;

means for passing a request received by the switch from the initiator to the target along the path with the shortest average response time.

19.   (Currently amended) A storage network, including:

an initiator;

a target;

a switch;

a plurality of storage input/output request routing paths from the switch to the target over a network, each path passing via at least one port of the switch;

wherein the switch includes statistical information regarding the response time for each path; and

wherein the switch is designed to forward a storage level input/output request from the initiator to the target along the path with the shortest response time to other storage level requests using processing circuitry affiliated with each of the ports.

20.   (original) The storage network of claim 19, wherein the target is a physical storage device.

21.   (original) The storage network of claim 19, wherein the target is a virtual target.

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22.   (original) The storage network of claim 19, wherein the target is a mirrored target with a plurality of members and wherein the plurality of paths are respective paths to each member.

23.   (Currently amended) A machine readable media which has instructions stored thereon, which when executed by a switch in a storage network causes the switch to perform the following steps:

providing a plurality of paths to a target from the switch over a network coupling the storage switch, target and initiator, each path passing through at least one of a plurality of ports of the switch;

receiving at said at least one port, a plurality of storage input/output requests;

determining a respective response time of each path using processing circuitry affiliated with said at least one of the plurality of ports; and

passing the storage input/output request received by the switch from the initiator to the target along the path with the shortest average response time.

24.   (original) The machine readable media of claim 23, wherein the target is a physical storage device.

25.   (original) The machine readable media of claim 23, wherein the target is a virtual target.

26.   (original) The machine readable media of claim 23, wherein the target is a mirrored target with a plurality of members and wherein the instructions to further include:

determining a respective response time of each member of the mirrored target;

passing a request received by the switch from the initiator to the target to the member with the shortest average response time.

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